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JOURNAL
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EDITORIAL NOTES

THE REPETITION OF EVIDENCE IN PSYCHICAL RESEARCH

Not many years ago, a President of the London Society for Psychical Research emphasized the need of continual re-presentation of evidences of psychical phenomena, the inference being that it was not so much the intrinsic nature of these but their recent date and the freshness of contemporary evidence which gave them that hold upon the public attention which was apt to be denied to instances chronicled in the past. It is a peculiar fact and not altogether a very reasonable one, that so many people who, in their way, are earnest students of psychical research, find it difficult to attach full weight to accounts of the experiences of a former generation of observers, when possibly all the attestors have passed away from this life and only the written or printed record remains. For most new students of the science, there is no doubt that the occurrences of the day are those which impress the attention. Upon this foundation may then be built a retrospective study which will little by little reveal its values with increasing appreciation of their importance. A personal experience, however slight or, to others, insignificant, must always have a value which no second-hand relation can give: but failing such personal experience, the next best and most convincing thing is the relation of some fact of recent occurrence, the parties to which are still living and available as witnesses. And it is from such examples, inferior though they may be, and often are, in their character and purport, to much that has transpired in times gone by, that we are now seeing the gradual filling of the cup of knowledge and appreciation of the reality of a psychic order of things in the minds of the general public, and the creation of a habit of thinking among them which embraces in its scope the element of spiritual and psychical recognition.

If this recognition leads, as it should lead, to individual research among the documents and the files of past records, and to a more comprehensive knowledge of the history of modern psychism and its many strange developments,—well and good. But unless and until the enquirer will turn the

pages of the long scroll of past happenings and try to fit together his ideas of what they signify in the way of psychical or metapsychical law, he will not succeed in making for himself a philosophy of the subject which shall be truly his own and not merely a borrowed one. For a philosophy that is borrowed from others is only useful to its holder up to a certain point; and it is apt to break down at some crisis and leave one either greatly confused, or altogether 'in the air', so to speak. Truth is so many-sided that no two people will see it from precisely the same aspect, although two views may so nearly harmonize as to constitute general agreement. But in spite of the necessary divergence of individual views and convictions, there seems little doubt that we are approaching a consensus of belief upon certain points and that it is becoming less difficult to formulate the outlines of agreement as regards some, at least, of the laws and conditions which rule our conceptions of the powers and activities of the human 'psyche' apart from the physical body and independently of the ordinary avenues of sensory communication.

* * * * *

Perhaps one of the most important convergences of opinion amongst students in this respect is the general feeling that there is no essential distinction to be observed between Telepathic Communion as between the living and that other form of intercourse which rules between the living and the dead. This recognition is a greater gain than might, at first, be imagined: because it provides for the fact of psychical communication a foundation that is spiritual rather than phenomenal and hence defines a much more natural and universal ground for the idea and practice of spirit-communication than the séance-room can ever truly afford. And it tends also to reconcile a large body of religious opinion to the essentials of the spiritist creed:—and this, in itself, is no small matter for the future of religion. It indicates an increasing emphasis upon the subjective, as opposed to the objective or physical, types of spiritistic phenomena and the development of this class of faculty in the medium as ultimately the more important.

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In this connection it is interesting to note in Dr. Gerda Walther's "Continental Notes" to be found in the present issue, a review of Dr. Hans Driesch's new work on Parapsychology and his analysis of those phenomena which, being irreducible into any more simple elements, are termed by him 'fundamental'. Of special interest is his classification of those which he regards as now entirely established—that is, accredited by official psychical research. Such established phenomena will include not only telepathy and thought-transference or thought-reading, but also clairvoyance and psychometry, whilst prophecy and certain physical phenomena he thinks very probably real. The work of Dr. Osty, to which we have recently had opportunities of drawing attention, has doubtless assisted largely to accredit a wider range of psychical phenomena both subjective and objective, and has brought them nearer to the status of official recognition by science.

The fact that the London S.P.R. was willing to offer practical help in the furtherance of his experiments is not without its significance. The publication of the record of Lord Charles Hope's sittings with Rudi Schneider marks another stage in the official recognition of the reality of teleplasmic, telergic, and telekinetic phenomena by official science, as the following brief preliminary notice shows.

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LORD CHARLES HOPE & THE MEDIUMSHIP OF RUDI SCHNEIDER

The July No. of *Proceedings* of the S.P.R. (London) comes to hand a little too late for analysis in our current issue, but it is hoped that we may be able to deal with it fully in August. It is entirely devoted to Lord Charles Hope's record of the experimental sittings he held with Rudi Schneider in London during October, November and December 1932.

Lord Rayleigh, F.R.S. interested himself in the investigation and supplied a good deal of the apparatus employed for the infra-red rays.

The Report is accompanied by short Commentaries supplied by Mr. C. V. C. Herbert, Lord Rayleigh, Professor Fraser-Harris, Prof. A. F. C. Pollard, Dr. William Brown, Mr. C. C. L. Gregory, Mr. Gerald Heard, and Dr. Wheeler Robinson, who give their impressions of the phenomena witnessed by them, and cite the conditions under which these were produced. Mr. Herbert was responsible for the physical side of the preparations, i.e. installation and use of the apparatus which had been designed and constructed by Lord Rayleigh.

He found that the absorption of the rays was not due to mechanical fraud. The photographic experiments were, for certain technical reasons, inconclusive; but the galvanometer tracings showed very definite occultations of the beam by the "invisible substance."

Lord Rayleigh, in his comments, emphasizes the need of patience and perseverance in dealing with a type of experimental research which he considers difficult and laborious. Dr. Fraser-Harris speaks as controller of seven of the eight sittings and was impressed chiefly with certain physiological aspects of the mediumship. He says that no "tricks" on the part of the medium were ever detected. Professor Pollard, who also controlled Rudi, asserts that the telekinetic phenomena observed by him were certainly not due to his action in the ordinary sense. Dr. Gregory says: (of trickery) "there was never the smallest sign, so far as I could observe, on the part of anyone: nor did Rudi's ordinary self seem at all compatible with the suggestion of deception of any kind." Dr. Wheeler Robinson, as a physicist, says he is unable to suggest any normal explanation of the absorptions which did, in fact, take place at certain sittings and of which the records were exhibited to him. The remarkable physiological behaviour of the medium seems to him to constitute an objective phenomenon well worth more detailed investigation. Dr. William Brown considers the positive

results obtained (apart from his own experiences, which were inconclusive) to indicate the desirability of further research which might produce results of definite scientific importance.

* * * * *

In an article printed in the *Daily Despatch* (London) for June 9th Mr. C. E. M. Joad affirms a definite correlation between the manifestation of the "invisible substance" interfering with the rays, and the breathing of the medium. He says: "The importance of these experiments is obvious; it seems to show that the movements of small objects are caused by a perfectly normal though little understood agency which, in the case at least of Rudi Schneider, has a direct and verifiable connection with the release of energy by the medium's body which takes place in breathing."

* * * * *

VERIFIED ITEMS IN THE "LIVRE DES REVENANTS"

The attention of readers is drawn to the series of items printed in this issue which verify in detail certain of the communications made by the controls of Mrs. Bigelow's group. These results are not to be lightly regarded. When finally collected they will form an impressive total. Here and there a subconscious or telepathic link between some sitter and the knowledge of individual circumstances detailed may be perhaps assumed as probable: but in other instances it is clear that no link of this kind can have existed; and the survival of personality becomes a rational conclusion.

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PSYCHE THE IMMORTAL

By Samuel E. Anderson

Part II.

THE GREAT BEYOND

Dr. W. W. Keen, a believer in the immortality of the soul, once wrote. "The moment before a human being dies he weighs so much, his structure is of such a character, both macroscopic and microscopic. A moment after he dies he is the same in appearance, in height and in structure, in every respect, really, except one, namely, that life has gone out of him—a thing that you can not feel, that you can not discover by any of the human senses, but the greatest reality in the world. It is the great imponderable. Science can not deal with it."

Death marks the departure of energy and Sir Oliver Lodge hints that there may be some substance to this thing that we call life. "All that we are concerned to show is that magnetic behavior exhibits a very fair analogy to some aspects of that still more mysterious entity which we call 'life'= and if anyone should assert that all magnetism was pre-existent in some etherial condition; that it would never go out of essential existence; but that it could be brought into relation with the world of matter by certain acts,—that while there it could operate in a certain way, controlling the motion of bodies, interacting with forms of energy, producing sundry effects for a time, and then disappearing from our ken to the immaterial region whence it came—he would be saying what no physicist would think it worth while to object to,—what many, indeed, might agree with.

"Well, that is the kind of assertion which I want to make, as a working hypothesis, concerning life.

"An acorn has in itself the potentiality not only of one oak-tree alone, but of a forest of oak-trees, to the thousandth generation and of oak-trees without end. There is no sort of law of 'conservation' here. It is not as if something were passed on from one thing to another. It is not analogous to energy at all; it is analogous to the magnetism which can be excited in any given magnet; the required energy, in both cases, being extraneously supplied, and only transmitted into the appropriate form by the guiding principle which controls the operation.

"We do not at present know how to generate life without the action of antecedent life, though that may be a discovery ready for us in the future; but even if we did, it would still be true (as I think) that the life was in some sense pre-existent; that it was not really created *de novo;* that it was brought into actual practical every-day existence doubtless, but that it had pre-existed in some sense too; being called out, as it were, from some great reservoir or storehouse of vitality, to which, when its earthly career is ended, it will return."

In these words a great physicist has presented to us his ideas on immortality.

Intelligence has proved just about as intractable as life. Dr. Francis Trevelyn Miller thus writes to the New York Times. "Did surgical science ever find a thought in the brain of a human being? Did it ever locate an idea in the mind of man? Did it ever find a railroad engine, a radio instrument, a steel foundry, an automobile, a fifty story building or a Brooklyn Bridge in the head of a man? And yet we know that these all emanated from and grew out of an idea, an intangible, undiscovered thought in the mind of a man. Everything that exists, every mechanism, every structure that man has created is but the materialization of one of those unmeasureable thoughts or invisible ideas. Yet no surgeon has ever been able to dissect one, perform an operation on one, or to remove one from the human brain.

No scientist ever saw a thought, felt or heard a thought until it manifested itself in words and objects, in actual deeds. Yet we all admit that a thought exists and that it is the most powerful thing in the world."

"Whence do we come? What are we doing here? Whither are we bound? If philosophy could really offer no answer to these questions of vital interest" says M. Henri Bergson, "if it were incapable of gradually elucidating them as we elucidate problems of biology or history, if we were unable to forward the study of them through an experience ever more profound and a vision of reality ever more piercing, if it were bound to be nothing better than an endless tournament between those who affirm and those who deny immortality by deductions from the hypothetical essence of the soul or of the body, we could well indeed say,—to adopt a phrase of Pascal—that the whole of philosophy is not worth an hour's trouble. True, immortality can not be proved experimentally, for experience can only be experience of a limited duration; and when religion speaks of immortality, it appeals to revelation. But it would be something, it would indeed be a great step forward, were we able to establish on the ground of experience the possibility, much more were it the probability, of survival for a time. The question whether this time is finite or infinite could be left outside the domain of philosophy. Well, reduced to these modest proportions, the philosophic destiny of the soul does not seem to me in the least insoluble. Here is a brain which works, and here is a consciousness which feels, thinks and wills. If the work of the brain corresponds to the totality of consciousness, if there were equivalence between the cerebral and the mental, consciousness might be bound up with the destiny of the brain and death might be the end of all. Experience, at any rate, would not speak to the contrary, and the philosopher who affirms survival would then have to support his theory by some metaphysical construction—usually a frail thing. But if, as I have tried to show, the mental life overflows the cerebral life, if the brain does but translate into movements a small part of what takes place in consciousness, then survival becomes so probable that the onus of proof falls on him who denies it rather than on him who affirms it; for the only reason we can have for believing in the extinction of consciousness at death is

that we see the body become disorganized, that this is a fact of experience, and the reason loses its force if the independence of almost the whole of consciousness with regard to the body has been shown to be also a fact of experience. In thus treating the problem of survival, in bringing it down from the heights on which traditional metaphysics has placed it, in transporting it into the field of experience, we are no doubt renouncing the immediate finding of a complete and radical solution. But what should we do? We have to choose, in philosophy, between the method of pure reasoning, which aims at a complete and decisive result, unable to be perfected since it is supposed to be perfect, and an empirical method, content with approximate results which can be endlessly corrected and enlarged. The first method, because it aims at making us immediately certain, condemns us to remain always in the simply probable or rather in the purely possible, for it is rare that it cannot serve to demonstrate indifferently either of two opposed theories equally coherent and equally plausible. The second aims first at simple probability, but since it works on a plane where probability may increase indefinitely, it brings us gradually to a state equivalent to certainty. Between these two ways of philosophizing I have long since made my choice. I shall be happy if, in however small a degree, I have helped to make yours."

It is Azan! The pearl has dropped again into the sea. Bowed in grief, torn by love, hope and despair, man instinctively turns to another world for help and with his sighs and tears he mingles prayers. So universal is the instinct that we may almost fancy that the germ of it floats in the very air we breathe. Throughout the ages man has clung tenaciously to his hope of a future life and he has looked to his inspired sorcerers, sibyls, seers and prophets for a confirmation of his faith. Nor rack, nor fire, nor iron has yet been able to break down that faith.

In "Sibyls and Seers" Mr. Edwyn Bevan writes, "On the subject of inspiration', wrote Mr. Walter Scott, in his edition of the Hermetica, 'Egyptians, Hebrews and Greeks thought much alike, from the earliest times to which we can trace back their thoughts; and in the time of the Roman Empire, Pagans, Jews and Christians spoke of it in similar terms.'

We have, in fact, a belief which goes back to primitive man all the world over, and persists in the various civilizations which have grown out of primitive society, not only in the three mentioned by Mr. Scott in the sentence just quoted, the Egyptian, Hebrew and Greek, but in all civilizations which have existed. Everywhere we find diviners and prophets carrying on the functions of the primitive medicine man; everywhere there is the belief in the possession of certain man by spirits which have entered their bodies and use their tongues; a belief resting largely on the actual pathological peculiarities which mark the insane. Right through the history of all peoples, from their savage origins to the last attainments of civilization, this belief runs like a thread, which has, no doubt, at the average level a cruder form than later on, but is nevertheless, in spite of modifications, essentially a continuous tradition. * * * *

When the Greek mind reached its highest point in Plato, the belief still adhered to it; when the civilization of antiquity reached its most elaborate material development and splendor, throughout the Mediterranean lands under the Roman Empire, the belief was more obsessing than ever. Of course it was dominant all through the Middle Ages. But it has not been destroyed by the scientific discoveries of the modern age. Some Rationalists may say that it ought to have been; they may say that it ultimately will be; but so far, destroyed it certainly has not been. Nor does it only exist today as a survival in the least instructed stratum of society. We have but to look around to see that there is nothing incompatible between the possession of modern scientific knowledge in the most eminent degree and adherence to some form of this belief.

The trend of modern opinion, as may be gathered from Sir Oliver Lodge, Dr. Millikan and many others is to explain survival in terms of the physical and thus we find that the Ether is being tacitly substituted for the Nous and as the symbol of eternity.

If you define religion as the deference which man pays to a supreme power, then it is well-nigh universal and judged by such a standard there are few scientists who are atheistic; perhaps those who deal with the majestically great or with the amazingly small, least of all. But they accept nothing upon faith. Only those things that convince their reason do they admit to be true.

Thus the term Rationalist has come into very general use and it is against this class that Mr. Bevan now addresses his argument. "But if we defined Rationalism as the belief that the universe is a reasonable universe, that nothing which is contrary to reason can be true, it would be a wholly misleading definition. For a large number of people who hold the dogmatic religious beliefs of some branch or other of the Christian Church would assert, as emphatically as any body can, that the universe is a reasonable universe and that nothing contrary to reason can be true. They think that their view of the universe the most reasonable one, just as the Rationalist thinks his. If therefore to be a Rationalist means to hold that view of the universe which is most in accordance with reason, the name could be claimed as a monopoly by those who hold the view ordinarily called Rationalism only if they begged the question at the outset, postulating that their view *was* the most reasonable one. Everybody probably in some sense would maintain that his view of the universe was the most reasonable one. In practice, the distinguishing difference of the Rationalist is that he holds that no change can be produced in the matter of the universe except as the effect of previous material change according to invariable mechanical law, or possibly as the effect of consciousness in a living body, and that no consciousness exists in the world except that of living men and animals, there is no spirit world outside living men and animals which can deflect the working of strict physical law, or from which a communication can come to the mind of man. The ancient belief in such a world was pure delusion.

Whether this denial is reasonable or not, it yields a view of the universe which, so far as it goes, seems clear and consistent. It is a view held today by many people, especially those whose interests lie in the direction of natural science.

On the other hand, a large proportion of educated people still believe, as primitive man believed, and as the ancient world believed, that the consciousness in living men and animals is not the only consciousness in the universe, that the spirits incarnate in men are in touch with the spirit world beyond, and that changes in the material world are sometimes caused by spiritual agency other than that of incarnate spirits. * * * *

The aim of the Rationalist is to show that everything that takes place in the world we know is due to a fixed order of mechanical causation, that if only we knew the total arrangement of the material universe at any one moment, we could calculate in detail everything which was going to happen thenceforward to the end of time. All natural science is based upon the hypothesis that the matter studied undergoes changes according to such invariable laws. That is why he feels bound to fight tooth and nail against the suggestion that the course of things could ever be interfered with by any spiritual agency from without. Such a notion would introduce uncertainty everywhere. But the trouble is that here, right in the midst of the world we know, we have a spiritual agency which introduces uncertainty, living bodies which interfere continually with the course of things. People often speak as if, apart from the supposition of miracles, you had a world perfectly regular and calculable. But this is not so. Here all around us are these lumps of matter, flesh and bones, moving about under the direction of non-material things, desires, emotions and values. The problem, the interference, is here in all its gravity, whether there is any spiritual agency in the world or not. A Rationalist may, of course, try to mitigate the contrast by saying that human psychology too, has fairly uniform laws of working, so that you can to some extent calculate beforehand what a man will do, as you can what course a flung stone will take. Yes, but the uniformity of a man's actions, so far as it exists, is a uniformity brought about by stability in purpose; a man with a formed character goes on willing the same kind of things: the uniformity is due, that is to say, to his actions being governed by enduring final causes, to that in front of him which attracts, not to a mechanically invariable force which pushes him from behind. Spiritual uniformity is thus in its very nature differentiated from the mechanical uniformity which holds of inanimate matter. * * * *

And now we see that the Rationalist has no solution of the problem: he has to admit that a kind of causation is plentifully exhibited in the world which is a complete mystery to him. And if it is a mystery to him, what right has he to prescribe for it the limits he does and pronounce that it can never occur except in the material bodies of living men and animals?"

"Spiritual causation" is not a particularly definite term but from all that has been said it may be gathered that what is intended is a supreme in-

telligence that enters or comes in contact with human bodies or brains and thereby influences conduct.

All of this biology and physiology resent as an intrusion into their own private holy of holies. They admit that "What you say is a beautiful phantasy" but ever they make the insistent demand, "Show us this life, this intelligence, this soul you talk so much about. Let us but once put our measuring instruments upon it and we, the proper persons to determine such matters, will pass our final judgment upon it."

Thus we depart to meet them on their chosen field.

LIFE

The Ether sent down to earth its ambassador extraordinary to take charge of life.

Mons. Ernest Solvay, speaking at the opening of the Brussels Institute said, "Biological research must be guided in the direction of Physics and Chemistry and, in my opinion, we must set out with this profound conviction; *that the phenomena of life can and should be explained by the working of the physical forces alone which control the material universe,* and that among these forces electricity plays a prominent part."

Scientists are not much addicted to prophecy, but Dr. Wolfgang Pauli was inspired to write, "There can be little doubt that out of the study of the physico-chemical properties of the colloids there will spring a new bud of physical chemistry in which the application of the modern teachings of electricity will play a primary role."

Jacques Loeb has made a still more remarkable statement and has carried it over to the psychic side. "The contents of life from the cradle to the grave are wishes and hopes, efforts and struggles, and unfortunately, also disappointments and suffering. And this inner life should be amenable to the physico-chemical analysis. In spite of the gulf which separates us today from such an aim I believe it is attainable. As long as the life-phenomenon has not yet found a physico-chemical explanation is usually appears inexplicable. If the veil is once lifted we are always surprised that we did not guess from the first what was behind it."

"Internal oxidation is for us the source of electricity," said Mons. Solvay and a host of men agree with him.

In his "Physiological Chemistry" Professor Albert P. Mathews explains the manner of its making. "Similarly all processes of oxidation, could we trace them out, would be found to involve the transfer of a negative electron from one element to another, the one which receives it being reduced and the element losing the negative charge being thus rendered more positive and being said to be oxidized.

Whether the foregoing picture of the process of oxidation be in all particulars right or not, it is beyond question that the oxidation does involve, in all cases in which the process can be watched, the transfer of positive and negative electrical particles or electrons, and that this is the essence

of the process. Moreover, the more easily a substance gives up a negative charge the more active it will be as a reducing agent; and similarly the more easily it gives up a positive charge, or acquires a negative, the more active will it be as an oxidizing agent. Oxygen acts as an oxidizing agent because it has a great tendency to take away a negative charge from other substances and to go over into the form of an oxygen ion, or of electro-negative oxygen.

The great importance of this theory from the point of view of physiological chemistry is that it shows at once that every oxidation in protoplasm is at the bottom an electrical process involving the transfer of electrical charges. In other words, an electrical disturbance of some kind, albeit possibly within molecular dimensions, must occur in every combustion in protoplasm. It thus furnishes a point of attack of the origin of the electrical disturbances which are so characteristic of living matter of all kinds and enables an understanding of the disappearance of these currents when the respiration of the protoplasm is prevented.

Life begins when the spermatozoon penetrates into the depths of the ovum and it is certainly true that the spermatozoa are capable of movement. So that the question immediately occurs, "What supplies the energy?" Would it be at all surprising if it proves to be in no way different from the energy that contracts a muscle?

Dr. Crile has written me that Keller has shown that the sperm and ova carry electrical charges of opposite sign.

When the spermatozoon met the ovum the charge did not disappear: it was still manifest as the first sign of life. It was that our friend did not now recognize it for what it had always been. It is just another case of the gain of entropy.

The locomotion of the spermatozoon and that of the electric automobile are both bound up with battery capacity.

Let us picture something like a lightning flash. The positive and the negative charges have met, and having met, all further attraction of the ovum for other spermatozoa is instantly abolished and the interlocking process is complete. "Let us return to the fact that fertilized eggs produce no more fertilizin. This is certainly a very remarkable circumstance, because prior to fertilization in the case of the sea-urchin they produce it in such abundance as to charge many times their own bulk of sea-water with easily detectable quantities. Immediately after fertilization this ceases, and the eggs no longer react to spermatozoa." So says Dr. Frank Lillie.

Such a conception furnishes a key as to why the reactions are irreversible.

Even in the cases where the spermatozoon is removed by centrifuging "The eggs from which the spermatozoon is removed complete the maturation process which is initiated by the spermatozoon, but they never segment. The egg nucleus (female pronucleus) arises and attains the same size as in normally fertilized eggs."

The climax is attained in artificial parthenogenesis. A master of that technique, Jacques Loeb, in summing up his conclusions at the end of his chapter on the Nature of the Process of Fertilization, asks this question, "What alterations can be produced in an egg by treating it for two hours with a solution of equal parts of 20/8n $MgCl_2$ and of sea-water"? He answers, "The bulk of our protoplasm consists of colloidal substances. This material easily changes its state of matter. * * * * Among the agencies which cause changes of these physical qualities we know three that are especially powerful. The one is specific enzymes. The second is ions in definite concentration. The concentration varies with various ions. The third agency is temperature." We turn back his pages to find this, "Years ago I had found that the fertilized sea-urchin egg can only develop in the presence of free oxygen: if the oxygen is completely withdrawn the development stops, but begins again promptly as soon as the oxygen is again admitted. From this and similar experiments I concluded that the spermatozoa causes the development by accelerating the oxidations in the egg."

Should we hesitate to add one more step and say that the oxidation produces the electric charge that henceforth controls living processes?

There is another very curious thing that takes place. "Immediately after penetration the head of the spermatozoon rotates around a transverse axis through one hundred and eighty degrees so that the base, which was external immediately after entrance, becomes oriented toward the center of the egg and the apex is directed externally. (Henking, Wilson, Boveri, Meves, Lillie, etc.) This phenomenon is very general, and it may be universal. No adequate explanation has been found for it, and its significance is quite obscure."

Does it not act exactly as if, in some mysterious way, the sign of the charge in the head of the spermatozoon had been reversed, and what but a few moments before had been attracted is now repelled?

Interesting though these acts may be their interpretation is not vital to our thesis for they are antecedent to life, for after all, the capacity for self-renewal is an outstanding feature of life. From the instant of fertilization, down to the moment of final dissolution, through every act of brain and brawn, we are able to keep in touch with the electric current.

We quote from "Life and Science" by Professor D. F. Fraser-Harris, "The evolution of the electric current is, then, the most delicate sign of life. But it is also the first sign of life, for the late Professor A. D. Waller, the English Physiologist, found that the hen's egg will give an electric current just as soon as the almost invisible speck representing the future chick is constituted on the surface of the yolk." He concludes, "The electric current, since it is producible as soon as a being can be said to be alive at all, and since it can be recorded long after every other sign of life is gone, has been picturesquely called the alpha and omega of animate existence."

So that first outburst of oxidation, which in turn sets the generator going, we shall designate as alpha.

Professor A. D. Waller in "The Signs of Life" said, "The signs by which we can always recognize that living matter is living are:—

1. Its reducing or dioxygenating power;
2. Its exhalation of carbon dioxide.
3. Its excitability.
4. The electrical signs of its chemical activity.

We . . . recognize that in the study of electrical change we have the most delicate and one of the most convenient means of approach towards an answer to these two questions addressed to matter that may be living or not-living:—

1. Are you alive?

And when this first question has been answered:—

2. How much are you alive?

Dr. Waller conducted experiments to prove when seeds are alive and when not alive and he demonstrated that they are alive when they give an electrical response and this notwithstanding they may be, to all appearance, dead. While the converse did not always prove true Dr. Waller was inclined to think that it was because the instruments were not always sufficiently delicate for the tests.

Professor Waller lends confirmation to the statement that oxidation is the source of electrical charge. "We are to recognize further that any and every living vegetable protoplasm, when excited, undergoes chemical, and therefore electrical change, whether it actually moves or not."

For many, many years Dr. George W. Crile has studied a similar question and he gives the result of that study in a paper that is the joint work of himself, Maria Telkes and Amy F. Rowland and which was read before the American Philosophical Society April 19th, 1929.

"The terms 'living' and 'non-living' and 'dead' denote variations in energy and form. In structure the living organism is identical with non-living—just as the live battery is identical in structure with the dead battery. But what is the essential feature in the living organism upon which structure depends? What is lost in death?

"Thirty-five years ago I first attempted to approach this problem by an investigation of the basis of death. Phenomenon after phenomenon associated with death was critically examined and set aside as it was found to be a result rather than a final cause of death.

"Studies of the circulation and respiration showed that the changes in these vital phenomena which are present in exhaustion and death are end effects and not primary causes of death. So, too, studies in the chemistry of the blood, while they revealed that the acid-alkali balance of the organism is of vital significance, did not reveal the cause of death.

"Later we directed our investigation to the determination of certain physical constants in various vital and lethal conditions. We found that the processes leading to death were always accompanied by a decrease in

the conductivity of the brain and of other components of the central nervous system and by an increase in the conductivity of the liver with corresponding changes in the electrical capacity of the cells. But certainly a change in the conductivity and capacity could not be the immediate cause of death.

"We propose now to offer new experimental evidence which identifies a form of energy that is lost in death—a form that is capable of constructing the films and of holding together the essential organic molecules.

"These researches which have been carried out in the research laboratories of the Cleveland Clinic Foundation were directed toward finding the relation between electrical potential and oxidation, that is, towards determining whether one or the other is the primary factor in the maintenance of life and whether the loss of one or the other is the essential factor in the production of death or whether both together are primarily essential. Our researches were especially directed toward the discovery of the influence of potential on oxidation; the influence of the potential on the form of the living, and by inference on the maintenance of the organic molecules; and to the discovery of the relation of the potential to death.

"The results of these researches may be summarized as follows:

1. In animals, plants, and fruits an electric potential exists during life and disappears at death.

2. The potential is varied by insomnia, by anesthetics, by poisons, by hemorrhage, by asphyxia, by change in electrolytic solutions, by adrenalin, by injury, by heat and by cold.

3. At the moment of clinical death the potential difference between different organs drops to zero for a few moments; following this, each organ regains its potential for a short time, but finally the potential of all tissues drop to zero, the respiration of all the tissues stops, and the molecular disintegration sets in.

"Are we then correct in ascribing the cause of clinical death to the fall in the potential between the different tissues and the cause of the death of single cells or of tissue cultures to the fall in the potential on the cell membrane?

If the molecular structure depends upon an electric strain or potential which also enables the organism to function and grow, we must find direct evidence therefor. Happily we found such direct evidence in observations of the potential of the amoeba. Dr. Telkes designed and constructed an electrode which could be inserted into an amoeba and with this electrode she made measurements of its potential.

The amoeba was observed under the microscope during the experiments. Here we had our first opportunity of noting under the eye the changes in structure which are produced by these various agents. Of special interest and importance were the effects of changes in potential produced by the direct application of an electric charge which could be varied at will. When the charge was increased the potential rose, and the amoeba became

more active. On the other hand when the potential was diminished by introducing a current, the direction of which was opposed to that in the amoeba, the amoeba became progressively less active and withdrew its pseudopodia, that is, it rounded up into a quiescent lump, until, when the potential reached zero or went over to the negative side, the amoeba disintegrated first into larger, then smaller granules and fragments and finally disappeared in the suspending solution. When, however, the potential was lowered by the counter charge and by no other factor nearly to zero and was held there, the amoeba would round up and some granules might even disintegrate but if at that crucial point when death and disintegration were imminent, the potential was raised by increasing the charge and by nothing else, the amoeba would pass from the resting to the active state, and would again throw out its pseudopodia."

Pardon us for breaking in upon Dr. Crile to inquire if this raising of potential, with the consequent passing of the amoeba from the quiescent into the active state in any way suggests to your mind that introducing a difference of potential by the spermatozoon might start a quiescent ovum into life.

Dr. Crile continues, "This crucial experiment indicates that the fundamental control of the molecular integrity and of the activity of the amoeba —this difference between life and activity and death and dissolution is governed by the change in the electric potential. In our experiments activity, quiescence, death and dissolution were governed completely by the production of variations in the potential power alone.

"From this we may infer that the organic molecules that are bound together in the animal organism, the arrangement of crystalloids and colloids, the separation of nucleus and cytoplasm, the maintenance of the molecular organization—we may infer that all these phenomena are manifestations of electric force. Electrical potential is the product of chemical activity and in turn the electrical potential governs chemical activity. These electrical and chemical processes are the governing factors in the production of the phenomena which are characteristic of life. In their absence the organism is dead.

"If the organic compounds, structures, etc., in plants and in animals are created by electric potential and chemical activity, especially by oxidation, then in such intermediate forms of life as fruit the same law should hold good.

"We therefore extended our researches to an investigation of the phenomena of potential and of oxidation in fruit and we found that every kind of fruit has a potential—the potential of an apple, for example, is about fifty millivolts, and the apple also has a steady respiration—consuming from three to four c.c. of oxygen every hour.

"In our experiments we found that the potential and the respiration of the apple change in the same direction, under the influence of anesthetics, and of changes in electrolytic concentration. The administration of adrena-

lin, changes in temperature, and the exclusion of oxygen affected the apple just as they affect the rabbit and the dog.

"In all cases in which the potential was reduced to zero the apple disintegrated just as animals and plants and the amoeba disintegrate when their potential is reduced to zero. A battery was constructed by arranging halves of apples in series and a potential of over a volt was thus created.

"By this study we have demonstrated that the structure of the apple like that of the amoeba is dependent on potential and here again we saw the relation between electric strain and the maintenance of the organic structure.

"In brief then, in a large number of experiments we have found that in animals and in plants and in fruits there exists a potential which has a certain range during life and disappears at death. Life is a phase of the organization created by electric strain or potential and death is an inert stage in which potential is lost and disintegration is inaugurated.

"Or we may define life and death in the following terms; life may be defined as a potential which is maintained and is varied adaptively according to environmental conditions, this potential being maintained by chemical activity—mainly by oxidation.

The loss of this potential is death. The principal difference then between that potential which is life and the potential which is present in nonliving systems like concentration cells is that the living potential is spontaneous and adaptively alterable."

Professor Waller put a second question. "How much are you alive?" Whether keen wit and quick repartee are accompanied by a greater difference of electrical potential, science has not yet answered; nor has it announced any opinion as to whether a difference of potential is responsible for a difference of "It." This gentleman speaks with some authority.

Part III.

WHERE DOES INTELLIGENCE BEGIN?

Each human foetus gives a resumé of the family history from its remotest ancestor down to the day of its birth. If from some ancient form as simple as the amoeba, arms and legs, ribs and spine, heart, lungs, arteries, muscles, tendons, endocrine glands etc. have slowly evolved, then the brain that today keeps them company must have grown out of that same simple form of life. The human infant makes its appearance upon the stage of life possessed of a few instinctive reflexes. It enters without consciousness, for it has not as yet breathed oxygen. Yet it arrives with intelligence of a certain sort; and if the amoeba has intelligence how shall we deny to the fertilized ovum something of like character? "The ovum has as yet no brain," you say, but neither has the amoeba. Infant and amoeba: each knows enough to keep the vital processes going. The amoeba ingets its food and extracts the elements needed. The child builds up its body and grows; and did that very thing from the first minute of its inception.

All human faculties, including the emotional and the intellectual, were potential in forms no higher than the amoeba; and comparative anatomy has, for a long way back, traced the road by which intelligence has travelled. Ernest Haeckel presents the subject thus, "Modern Anatomy and Physiology have demonstrated that these functions of the mind, or psychic activities, are immediately dependent upon the more delicate structure of the central nervous system, upon the internal conditions of the form of the brain and the spinal marrow. Here are placed the extremely complex mechanism of cells, whose physiological function constitutes the mind-life of man. It is so complex that to most people its function appears to be something supernatural, and incapable of mechanical explanation. But the history of evolution of the individual furnishes us with the most surprising and significant information as to the gradual origin and progressive formation of this most important system of organs. For the first rudiment of the central nervous system in the human embryo makes its appearance in the most simple form in which Ascidians and other inferior worms retain it throughout life. A perfectly simple spinal marrow, without brain, such as throughout its existence represents the organ of the mind of the Amphioxus, the lowest of the Vertebrates, first develops from this rudiment. It is only at a later period that a brain develops from the anterior extremity of this spinal cord, and this brain is of the simplest form, similar to the permanent form of this organ in the lower Fishes. Step by step this simple brain develops further, until the highly organized form is reached which distinguishes the Apes from all other Vertebrates, and which finally attains the highest development in the human brain. But step by step with this progressive evolution of the form of the brain, the evolution of its peculiar function, the psychical activities, moves on hand in hand, and it is therefore the history of the evolution of the central nervous system, which for the first time enables us to understand the origin of life of the human mind from natural causes, and the gradual development of the psychic activities of man."

The matters here outlined by Professor Haeckel have long since been worked out in very great detail and if we are to reach the source of intelligence it will be necessary to make some very long skips and in this first skip will be included all those forms of animals in which nerve tissue has been detected. So we immediately go back to the single-celled amoeba and we deem it an especially happy choice since it was upon this animal that Dr. Crile conducted his experiments to show the electrical origin of life.

Professor George J. Romanes in his "Mental Evolution of Animals" says, "The lowest animals in which nerve tissue has been detected are Medusa, or jelly fishes, and from them upward its occurrence is invariable."

But below these Medusa, or jelly fishes, there is a world of animal life whose members have no nerve tissues. The single celled amoeba runs the scale of the necessary life functions. Without mouth or stomach it feeds and grows, without feet or hands it moves about, without glands it

multiplies and seemingly has its pleasant thoughts and angry moments.

Without nervous tissue it also exhibits intelligence; shown in its adjustments to external conditions. Prof. Romanes says, "No one can have watched the movements of certain Infusoria without feeling it difficult to believe that these little animals are not actuated by some amount of intelligence. Even if the manner in which they avoid collisions be attributed entirely to repulsions set up in the currents which by their movements they create, any such mechanical explanation certainly cannot apply to the small creatures seeking one another for the purpose of prey, reproduction, or, as it sometimes seems, of mere sport. There is a common and well-known rotifer whose body is of a cup shape, provided with a very active tail, which is armed at its extremity with strong forceps. I have seen a small specimen of this rotifer seize a much larger one with its forceps and attach itself by this means to the side of the cup. The large rotifer at once became very active, and swinging about with its burden until it came to a piece of weed, it took firm hold of the weed with its own forceps, and began the most extraordinary series of movements, which were obviously directed towards ridding itself of the incumbrance. It dashed from side to side in all directions with a vigor and suddenness which were highly astonishing, so that it seemed as if the animacule would either break its forceps or wrench its tail from its body. No movements could possibly be better suited to jerk off the offending object, for the energy with which the jerks were given, now in one direction and now in another, were, as I have said, most surprising. But not less surprising was the tenacity with which the smaller rotifer retained its hold; for although one might think it was almost being jerked to pieces, after each bout of jerking, it was seen to be still attached. This trial of strength, which must have involved an immense expenditure of energy in proportion to the size of the animals, lasted for several minutes, till eventually the small rotifer was thrown violently away. It then returned to the conflict, but did not succeed a second time in establishing its hold. The entire scene was as like intelligent action on the part of both animals as could well be imagined, so that if we are to depend upon appearances alone, this observation would be sufficient to induce me to attribute conscious determination to these microscopical animals."

Mr. H. J. Carter says: "In the evening of the second of June 1858, in Bombay, while looking through a microscope at some Englenae, &c., which had been placed aside for examination in a watch glass, my eye fell upon a stalked and triangular acineta (A. mystacina?) around which an amoeba was creeping and lingering, as they do when they are in quest of food. But knowing the antipathy that the amoeba, like almost every infusoria, has to the tentacles of the acineta, I concluded that the amoeba was not encouraging an appetite for its whiskered companion, when I was surprised to find that it crept up the stem of the acineta, and wound itself round its body. This mark of affection, too much like that frequently evinced at the other end of the scale, even where there is a mind for its control, did not long

remain without interpretation. There was a young acineta, tender, and without poisonous tentacles (for they are not developed at birth) just ready to make its exit from the parent, an exit which takes place so quickly, and is followed by such rapid bounding movements of the non-ciliated acineta, that who would venture to say, a priori, that a dull, heavy, sluggish amoeba could catch such an agile little thing? But the amoeba are as unerring and unrelaxing in their grasp as they are unrelenting in their cruel inceptions of the living and the dead, when they serve them for nutrition; and thus the amoeba, placing itself round the ovarian aperture of the acineta, received the young one, nurse like, in its fatal lap, incepted it, descended from the parent and crept off. Being unable to conceive at the time that this was such an act of atrocity on the part of the amoeba as its sequel disclosed, and thinking that the young acineta might yet escape, or pass into some other form in the body of its host, I watched the amoeba for some time afterwards, until the tale ended by the young acineta becoming divided into two parts, and thus in their respective digestive spaces ultimately becoming broken down and digested."

Professor Romanes refuses to admit that this performance exhibited anything like intelligence for the simple reason that he knows of no mechanism by which it could be brought about. Nor can we, any more than he, say how it is brought about, but we do call attention to the fact that the amoeba, lowly as it is, was even then in possession of the thing that, as we expect to show, operates our own brain; namely, a difference of electric potential.

Almost at the very dawn of life, at least in the lowly forms of it, there is enough to cause the scientists to marvel at the evidence of intelligence. When, on the slide of the microscope, these lowly forms have fought or fled; have met their Waterloos, we have seen pictured the physical manifestations of rage and anger and fear, and these are the basis of all the self-preserving instincts to be found in man.

As the cell reproduces itself by segmentation we catch the first glimpse of altruism: the surrender by the individual of a part of its resources for the benefit of the species. And this is the basis of love: that emotion that is placed, by most persons, at the very summit of all the things that move us.

The psychologists have stripped our own little baby down to the fundamental emotions of anger, fear and love. Out of these primaries has been built the vast net-work of emotional responses made by man, just as out of a primary intelligence has been built his enormous number of intellectual responses. Today, the greater number of our intellectual responses have an emotional origin. Dare we even hint that your own little darling is too often moved by the same chemical or catalyst mechanism that moves the lowly amoeba. The evidence indicates the probability that all man's prized possessions, including the emotions and intelligence, were potential in the unicellar organism.

M. Henri Bergson gives expression to something along this line when he says, "We have good ground then, for believing that the evolving force bore within it originally, but confused together, or rather the one implied in the other, *instinct and intelligence*. * * * * On the two great routes that the vital impulse has found open to it, along the series of the arthropods and the series of the vertebrates, instinct and intelligence, at first wrapped up confusedly within one another, have in their development taken different directions. At the culminating point of the first evolution are the hymenoptera, at the culminating point of the second, man."

The thing to be criticized in this paragraph is the implication that they have definitely separated.

From the Encyclopaedia Britannica we take this extract. "It seems that chemical correlation is the more primitive of the two methods by which coordination between the different parts of the body is achieved. Starling has pointed out that in the lowest animals before the appearance of the central nervous system it is by chemical means that co-adaptation of function is assured."

Many are the acts taking place within the human body over which the cerebrum has little or no control. For instance, there is heart beat, respiration, digestion, body temperature, equilibrium, the synthesis of the hormones and their release, preparations made for desperate emergencies in which life is involved. Aye, at times, even the decision whether to flee or stand.

There is strong evidence to show that the control of some of these instinctive acts is within the province of the adrenal glands, and that they govern by chemical means. In short, they are the "brains" of the sympathetic system.

The mobilization of the leucocytes to attack the invading enemy is carried out with an exactness equal to that of the termites. So far as the human eye can discover the leucocyte devours its prey with as much acumen as does the amoeba.

Would you term the Chinese Carrion lily stupid? Explain it as you may, the fact remains that this lily has gathered unto itself a spathe that in shape resembles nothing so much as a large liver, a color that confirms that first impression, an odor that convinces any hesitating individual, for it is that of rotting liver, and a mechanism that is efficiency personified, when measured by the accomplishment of the purpose in—mind? Hear what Luther Burbank, a man who all his life has held communion with the flowers, may have to say. "The Chinese Carrion lily makes doubly sure of pollenation by a very ingenious device. Unlike most common flowers, which advertise to the bees and birds and butterflies, this plant sends its message to the flies. The fly, attracted by the color of the spathe and guided by the hidden odor at the base of the flower, lights on the sturdy spadix and uses it as a ladder for descent. The opening around the spadix is just large enough to afford a comfortable passage way; but once within

the well, the spathe closes in and tightly hugs the spadix so that the fly, buzzing about in the chamber below, becomes thoroughly covered with the pollen dust. This done, the flower slowly unfolds and permits the pollen laden insect to escape. * * * *

With the rue, the arrangement is curiously complex and machine-like. Of the several stamens, each in turn bestows its pollen on the pistil at their common center. It has been observed that the stamens advance alternately, numbers one, three and five inturn; numbers two, four and six following in successions, as if the entire mechanism were actuated by clock-work."

Everywhere we turn we see a new display of ingenuity, concludes Mr. Burbank.

The flowers have spoken their part. Does the green-clad workman in the leaves know aught of what he does as he transforms the carbon and the sunshine into life?

Maurice Maeterlinck has suggested that we might go lower still, and show, as Ruskin has shown in his "Ethics of the Dust", the characters, habits and artifices of crystals; their quarrels and mode of procedure, when a foreign body attempts to oppose their plans, which are more ancient by far than our imagination can conceive; the manner in which they admit or repel an enemy, the possible victory of the weaker over the stronger as, for instance, when the all-powerful quartz submits to the humble and wily epidote, and allows this last to conquer it; the struggle, terrible sometimes and sometimes magnificent, between the rock-crystal and iron; the regular, immaculate expansion and uncompromising purity of one hyaline block, which rejects whatever is foul, and the sickly growth, the evident immorality, of its brother, which admits corruption and writhes miserably in the void.

Mr. Ruskin, speaking for himself, suggests, "You at once admit a kind of volition and choice in the flower; but we are not accustomed to attribute anything of the kind to the crystal. Yet there is, in reality, more likeness to some conditions of human feeling among stones than among plants. There is a far greater difference between kindly-tempered and ill-tempered crystals of the same mineral, than between any two specimens of the same flower: and the friendships and wars of crystals depend more definitely and curiously on their varieties of disposition, than any associations of flowers.

Professor Mathews says, "We may close this chapter in no better way than in opening the question of the origin of the psychic qualities which are so related to the nervous system. Are they not found in their faintest form way down the slope of animal life? Do we not indeed see the beginnings of the psychic life among the plants? And is it possible to start with the plants? Do not the foods every minute change into living matter in our bodies? Are not the atoms the same in the foods and living matter, and is it possible that they may have different properties in the living and lifeless forms? The atoms we now know are composed of electricity and the

valances, or chemical bonds, are probably also electrical in nature. Are our thoughts also at the bottom electrical? Whenever a nerve impulse sweeps over a nerve it is accompanied by an electrical disturbance, and this disturbance is the surest sign of life. When the nerve impulses play back and forth over the commissures of the brain they are accompanied by this pale lightning of the negative variation. Is that pale lightning what we recognize as consciousness in ourselves? It would seem that there must be some psychic element in every electron if the atoms are made of electrons. There must be some psychic disturbance in every union of hydrogen and oxygen to make water and in every wave of the wireless telegraph. When an electron moves it generates a magnetic field; does it also generate a psychic field? How shall we escape the conclusion that there must be a psychic element in all matter living and lifeless, since that matter is the same in the two forms?"

The universe presents every appearance of law and order and while scientists prate much of their "laws" few of them dare affirm that these are laws that *must* be obeyed, since that would imply the existence of a "spiritual" force capable of enforcement and against this, as Mr. Bevan suggests, they feel bound to "fight tooth and nail."

If the protons and electrons are compelled to behave in certain definite ways it must be by virtue of something inherent in themselves or prescribed to them from without. If Dr. Millikan is correct and they are born of the Ether, the latter is the more probable.

DO the protons and electrons bring a message down with them?

LE LIVRE DES REVENANTS

PART XVII.

The Fortieth Sitting, held on May 1st, 1929 and recorded in the JOURNAL for May, 1933 brought the session to a close. The meetings at Mrs. Bigelow's apartment were adjourned until the fall.

Owing, however, to the serious illness of Mrs. X....., it was impossible to re-constitute the group and when its members were again collected, the experiments took another direction. It was resolved to try with a cabinet, and the first sitting for this purpose was held on the 19th December. Later, the attempt to secure psychical impressions on photographic plates assumed the chief place in the research work of this group, and some results of interest were recorded. There is, however, nothing on record in the way of messages or communications during this time which would offer material for the "Livre des Revenants." This state of affairs continued throughout the spring session of 1930, and it was not until after the summer holidays that any effective plan could be carried out for the resumption of this special work. But in September this was at least achieved, and on the 25th of that month there were four members of the old group able to meet again at Mrs. Bigelow's rooms. So we start our record with the chronicle of the Forty-first Sitting, held on the 25th September, 1930.

* * * * *

SITTING XLI.

Sept. 25, 1930.

Present: Mrs. Ernest Bigelow: Mrs. van Antwerp: Mrs. X.....: and Mr. Bligh Bond. Time 8.40 p.m. All seated around the card-table. The room was fairly well-lighted by a shaded lamp giving a green translucency as approved by the control F.N. This was the first occasion on which Mrs. X..... had been able to take part in the work of the group. Mr. Bligh Bond acted as recorder. After about 3 minutes the table vibrated, and then tilted towards Mrs. X..... Alphabet was given by Mrs. van Antwerp and Mrs. X..... interpreted.

First Control. (C.1.).

C.1. "Who is a man by the name of BUCHMAN?"

Sitter. "We don't know him."

C.1. "He is in some way connected with Hyslop House."

Sitter. "Not a member of the A.S.P.R., is he? Do you know him?"

C.1. "Mrs. Woolley knows him."

Sitter. "The name doesn't seem right. Would you please spell it again?"

C.1. "B.U.C.H.A.N." "I was the husband of....."

(This control was identified by the group.)

Second Control. (C.2.).

C.2. "I am the man who gave anonymously to Boston University. My name was never known."

Sitter. "Not even to the authorities?"

C.2. "Verify by writing to the President of the Board. I passed away about six months ago."

Sitter. "What was the sum you gave?"

C.2. "I gave it at intervals during my life."

Sitter. "Give us your name, please?"

C.2. "My first name was William."

(Two questions were asked here simultaneously)

C.2. "Which shall I answer?"

Sitter. "Give us your last name."

C.2. "WILLIAM NICKERSON."

Sitter. "Where did you reside in Boston?"

C.2. "Lived at Beacon Street, Boston."

* * * * *

NOTE. There had been no obvious break between the two controls, and F.B.B., taking notes, had not observed the transition. So he said "The whole name is William Nickerson Buckan." At this, the table gave a violent jerk, and the mistake was admitted. The communicator went on to say:

C.2. "I died on Beacon Street."

* * * * *

Third Control. (C.3.).

C.3. "MRS. BENJAMIN HALL . . . I passed longer ago than Mr. Nickerson."

Sitter. "Did you know him?"

C.3. "No."

Sitter. "Did you leave a family?"

C.3. "A son—Two daughters-in-law."

Sitter. "Give us your son's name." (No reply.)

* * * * *

Fourth Control. (C.4.).

(NOTE. Mr. Bond, discussing the identity or possible identity of the BUCKAN control, mentioned the name of Mrs. Sidgwick. This brought the new communicator.)

C.4. "How did you happen to mention the name of SEDGWICK? Do you know him?"

Mr. Bond. "No, it was SIDGWICK I spoke of."

C.4. "No. I am a SEDGWICK. I come from Western Massachusetts. I want to elicit where I died."

Sitter. "Didn't you die in Western Massachusetts?"

C.4. "Yes."

Sitter. "Were you married?"

C.4. "Yes."

Sitter. Had you children?"

C.4. "Yes . . . I don't know their names."

Sitter. "Perhaps we can help you?"

C.4. "Mention some places . . . It was rather a big place . . . a large town."

Sitter. "Salem?"
C.4. "No."
Sitter. "Lowell?"
C.4. "No."
Sitter. "Worcester?"
C.4. "No . . . Not so far from Williams College . . . It began with S . . ."
(in rejoinder to some remark passed by a sitter:)
C.4. "No, I am not a woman . . . A man in politics . . . The second letter is T."
(The names of places beginning with S.T. were guessed, and Mr. Bond tried the alphabet for the vowel to follow. When he got to 'O', the communicator gave a decided assent: so STO was taken, and finally STOCKBRIDGE was identified.")

* * * * *

Fifth Control. (C.5.).
C.5. "I am DOCTOR A. RUSH."
(Greetings ensured from the sitters and the table made a move towards Mr. Bligh Bond as to a newcomer.)
C.5. "Will you present me? Does Mr. Bond know of the work?"
Mr. Bond. "Yes, I do; and I should like to say how greatly I appreciate what you have done."
C.5. "I mean the work this circle has accomplished."
Mrs. Bigelow. "Will you go up and see my friend Major S..... at ..... and examine his ear, to find out what is wrong?"
C.5. "Yes."
Mrs. Bigelow. "Will you go now and come back with a report of what you find?"
C.5. "Yes." (Communicator departs.)

* * * * *

Sixth Control. (C.6.).
C.6. "My name is HARRY PIERCE, from .....* (*confused)—I was short, stout, and lame, with curly hair and moustache . . . From SHELBURNE FALLS."
Mrs. Bigelow. "Why, you must have known Old BILL?"
(Here the table gave a great jump in acquiescence.)
C.6. "I had a wife with short grey hair." (Communicator leaves.)

* * * * *

Seventh Control. (C.7.).
C.7. "Oh! Oh! Oh, dear! I passed on in New Orleans recently . . . Name is EDGE . . . I left a widow and one daughter . . . I am in great sorrow."
Sitter. "What can we do for you."
C.7. "They have so little to live on."
Sitter. "Can you give us their address?"
C.7. "I was a newspaper man . . . I lived on Esplanade Avenue . . .

Number . . . I want you to verify."

Sitter. "Can you give us your first name?"

C.7. "Seems like FRANK . . . I drew designs for Carnival floats."

Sitter. "Do you know where your wife and daughter are now?"

C.7. "For God's sake don't ask them . . ."

Sitter. "You mean that they would not believe?"

C.7. "NO." (with emphasis.)

Sitter. "With what newspaper were you connected?"

C.7. "I dropped dead from the heat . . . Name some New Orleans papers."

(This did not lead to any identification, and the communicator left.)

* * * * *

Eighth Control. (C.8.).

(This was the same communicator who announced her name at earlier sittings in connection with the medium Frank Wiggin of Boston. As the substance of the communication is strictly personal, it does not find a place in this record.)

* * * * *

Ninth Control. (C.9.).

C.9. "I saw my husband at Rockaway."

Sitter. "Who is speaking?"

C.9. "I am IDA WHITE from SHADOW LAWN . . . He was walking, and my momentum was terrific as we passed."

(This caused amusement at the notion of the unsubstantial IDA 'swishing' past her husband. Was he conscious of it? There was nothing further from this source and the communicator left.)

* * * * *

Tenth Control. (C.10.). (Refer to C.5.)

C.10. (Table gave three gentle tilts.) "I am DR. RUSH."

"I have made an intensive examination. I find nothing serious, but there is a clogging from the ear to the throat. Would he try very simple remedies? . . . To lean forward, like bending the body double; and then incline the head to the right or to the decided left, as condition requires. Madge, try it."

(Here Mrs. van Antwerp practised standing up and bending forward, then swinging her head from side to side until she got the approved movement which was designed to put a tension on the cords of her neck.)

C.10. "Bend and swing head to left or right, as necessary—way over farther . . . stand up and do it."

Mrs. van Antwerp. "Is that right?"

C.10. "Yes."

Mrs. van Antwerp. "How often shall he do this?"

C.10. "Every time he feels the throbbing. It will stop it."

Mr. Bond. "Will ephedrine be of any use to him?"

C.10. "No."

Sitter. "Will he regain his hearing?"

C.10. "I do not know. Has he had his ears blown?"

Sitter. "Probably he has. The trouble came from shell-shock."

C.10. "Mortals get the same roaring from swimming. (Here the table moved across to Mrs. Bigelow.) "I don't find anything serious." (This refers to Mrs. Bigelow's own local affection.) . . . "I yet recommend . . . (Here some instructions were given by Dr. Rush to Mrs. X..... for Mrs. Bigelow's benefit.)

Mrs. Bigelow. "Will you give treatments to Major S.....?"

C.10. "Gladly."

* * * * *

Eleventh Control. (C.11.).

C.11. "Who is this? . . . Who is URSULA?" (no more from this one.)

* * * * *

Twelfth Control. (C.12.).

C.12. "MARGARET GAUL." (addressing Mrs. X.....). "You are going to lose a valued friend before many moons . . . Mrs. Pritchett."

(Mrs. X..... commented on this, remarking that Mrs. Pritchett had had one or two shocks and was incapacitated.)

Sitter. "Where have you been, Margaret, all this time?"

C.12. "I have been working in their realm. Do you see FREDERICK?"

Sitter. "Yes."

C.12. "He is here . . . He has brought all these people."

* * * * *

Thirteenth Control. (C.13.).

C.13. "FREDERICK . . . The green light is perfect. Does BLIGH know anything about materialization?"

Mr. Bond. "Yes, Frederick, I have been recently studying this phenomenon at Winnipeg."

Sitter. "Have we too much light here for yours?"

C.13. "No. I want to show a face in a shade no darker than this room."

Sitter. "How long will it take you to do this?"

C.13. "Any honest materialization must take an endless time. Now I want plenty of old-fashioned matches . . . sulphur matches."

Sitter. "What else?"

C.13. "And water . . . And not riding in luxury . . . no taxi . . . ."

Sitter. "But Mrs. X..... must have one, as her health needs it. She cannot walk here. What are we to do if it rains?"

C.13. "Better not come then. There are electrons from a taxi. Cancel the evening."

* * * * *

Fourteenth Control. (C.14.).

C.14. "Who is MYRTLE?"

(Communicator leaves. *End of Sitting.*)

* * * * *

VERIFICATIONS OF
NAMES AND ADDRESSES, ETC.: OF COMMUNICATORS IN SITTING XLI.

* * * * *

(1). WILLIAM NICKERSON.

It was alleged by the control that William Nickerson had made an 'anonymous' gift to Boston University. Reference to the University authorities made it clear that, so far as they were concerned, all the donations made by William Nickerson in his lifetime had been publicly acknowledged. It seemed therefore that in this case there was confusion or a mistake.

But the probate of the will of William Nickerson discloses for the first time that the testator has willed that twenty years after the death of the residuary legatee, the estate reverts in equal portions to the Boston University and the Massachusetts Institute of Technology.

It seems reasonable to interpret the message as referring to this intention of his to benefit Boston University by will. The word "anonymous" is of course inappropriate, but it does differentiate this from other gifts which he made in the past and which were publicly acknowledged.

(2). FRANK EDGE.

Mrs. Frank Fourton, a member of the A.S.P.R., made enquiry of a friend in New Orleans and received the following information in a letter dated May 15th, 1931.

"After reading the communication I looked in the New Orleans Directory for the name of Frank Edge. It did not appear in the 1931 directory, so I looked for it in the 1930 directory of which we happened to have a copy in the office, and found the name FRANK EDGE, Artist, 741 Esplanade. That is as far as I have gone, but intend to investigate further and will write you the information I may get. . . .

"Since writing the above, I called up "Soulie and Crasson," who take charge of the Carnival floats. I asked "Do you, or did you, know a man named EDGE?" and the answer was "Yes, but he died about a year ago."

(I asked) "Was his first name FRANK?" Answer: "He went by the name of GILL EDGE."

"Was he a newspaper man?"

"Yes; and he worked on the 'Daily States'."

"Did he have any family?"

"Yes, he had a wife and daughter, but they went away. I think they are in New York."

"I called up the "States" office and talked with a man who knew Mr. Edge. Name (he said) was GILL EDGE . . . died in summer a year ago . . . left a wife and daughter."

The communication checks up correctly. Those to whom I spoke did not know the whereabouts of the wife and daughter. . . ."

* * * * *

(3). COLONEL GOODLOE AND PROF. GILBERT POND (see May JOURNAL, 1933).

A correspondent who does not wish her name published, writes under date May 19, 1933 giving detailed verifications of the names of persons and places with many details mentioned in the communications printed in our May number in connection with COLONEL GOODLOE and PROFESSOR GILBERT POND and their respective families. Although we are not at liberty to quote any personal details, it may be stated that these are so perfectly verified as to constitute, in the writer's opinion, absolute evidence. As regards "STATE COLLEGE" it is permissible, however, to record her remarks, as follows:

> "STATE COLLEGE" in its early days, might have had 'pigs running wild in its streets'. . . . 'STATE COLLEGE' is the name of the town. They did all their shopping in Philadelphia;—no shops in State College;—and Philadelphia stores sending salesmen weekly or monthly. Between State College and Bellefonte are a series of little hamlets named after women's names:—ELIZA, MARIA,—perhaps HANNAH,—I've forgotten.
>
> "It isn't exactly in the coal region, though near. The cold water soap,—rather, *hard-water soap,*—is a special, put on by John Wanamakers in Philadelphia every March, and a great many people in Penn. and New Jersey buy it in 'gross' lots every year. However, it is a toilet soap. . . ."

(4). DAVIS OF NEENAH, WIS.: AND BELLE DAVIS (see Jan. 1932, Part IX.) ALSO OLD ZENAS CRANE.

Mrs. Fenton Taylor of New York writes under date May 26th, 1933 as follows:

> "The three people mentioned in the "Livre des Revenants" whom I recognized are; DAVIS, Lumberman, of NEENAH, WIS. whose daughter had trouble with her eyes, and, in a previous issue of the magazine. . . . "OLD ZENAS CRANE" of DALTON, MASS.
>
> "He died several years ago, but I knew him personally and have often visited the family. He was head of one of the Crane paper mills which make all the Govt. paper money as well as Crane's stationery.
>
> "MR. DAVIS, whose first name was DAVID, came from paper business, which of course uses lumber in the shape of wood pulp), to EAU CLAIRE, WIS. where he became head of a large paper mfg. NEENAH, WIS, where he had been in business (either lumber or the concern with his brother Mr. Will Davis). Their Co. was known as the 'Davis Paper and Pulp Co.'
>
> "His daughter BELLE was almost blind and wore very thick lenses which made her eyes look like pin-holes. Mr. Davis was a friend of my father's and we knew the family well."

* * * * *

CONTINENTAL NOTES

By Dr. Gerda Walther

PSYCHICAL RESEARCH, THE SCIENCE OF OCCULT PHENOMENA

This is the title of a book recently published by the famous German philosopher, Professor Hans Driesch. ("*Parapsychologie Die Wissenschaft von den "okkulten" Erscheinungen.*" F. Bruchmann, Munich.) One might call it a kind of "logic" or methodology of psychical research. The different kinds of phenomena and historical cases that have been investigated are only described as far as it is absolutely necessary for understanding the methodological problems. First of all, Driesch says, the factual basis and genuineness of psychic phenomena—both mental and physical—must be scientifically established wth the utmost certainty; and only when this is the case can they be scientifically investigated and explained. He then enters upon the different sources of error (conscious or unconscious fraud on the side of the subject or the investigator; self-deception etc.). Here it is important to note, that Driesch is of the opinion, that a medium once having been caught as being fraudulent may yet be genuine at other times, though of course special care is then necessary in his investigation. Then the different kinds of observing phenomena are described and criticized (observation of spontaneous phenomena, "expectant" observation (waiting for a phenomenon which is expected to occur, though it may or may not do this; and real experiments). According to Driesch mental phenomena can only be investigated by behavioristic methods, i.e. the observation of the "behavior" of the medium, or, as he prefers to say; the "metagonome." (Here I think Driesch doesn't see the importance of a scientific self-observation of the "metagnome" which may produce much important material which can never be obtained by the behavioristic method. G.W.)

Driesch distinguishes between phenomena that are (1) entirely established, (2) highly probable and (3) uncertain. "Entirely established" according to his opinion are telepathy (spontaneous telepathy), thought- transference, "tapping" of the thoughts of others, clairvoyance, psychometry; "very probable" are prophecy and some physical phenomena. Though Driesch says he is much impressed personally by some physical phenomena he has witnessed, yet he does not feel entitled to call them entirely established in the strict scientific meaning of the word. So as yet they are but highly probable, but he hopes they will soon be entirely established by further investigation, especially that of Dr. Osty. Highly probable then are phenomena of telekineses, materialisation of fragmentary forms (not phantoms), raps etc. and some poltergeist-phenomena. Apports "direct voice" etc. however are very doubtful.

Putting aside the question whether their basis in fact is established or not Driesch then proceeds to the question which of these phenomena may be considered as being "fundamental phenomena," i.e. phenomena that can not be explained away by reducing them to other phenomena. Such fundamental or basic phenomena are e.g.: telepathy; thought-reading; clairvoyance; prophecy; and in the physical domain materialisation (telekinesis, raps, levitation of the body of the medium can probably be explained by materialisation in different degrees) also perhaps some poltergeist phenomena. Whether psychometry is to be regarded as a basic phenomenon seems to be doubtful.

When the question as to what is to be regarded as a basic phenomenon is settled and one has tried to find out how these phenomena are brought about, i.e. their *modus operandi*, and under what conditions they generally occur, one can try to give theories explaining them, though as yet these theories are only hypotheses for the present. One of the principles that must here be observed is the old sentence *entia non sunt creanda praeter necessitatem* (no more new things must be introduced than is absolutely necessary)—this "principle of parsimony' has' already to be followed in the question of basic phenomena. Here it means that as far as possible psychic phenomena must be explained by things already known in other branches of science or by an amplification of such things, though, on the other nand, of course one must introduce new things if the given facts demand it. Materialisation e.g. can probably be explained by an

amplification of vitalism,—a kind of super-vitalism,—regarding it as a new form of assimilation of matter influenced by auto- or hetero-suggestion. Mental phenomena can not, according to Driesch, be explained by psychomechanical parallellism or theories of (physical) radiation. All explanations of mental phenomena must first of all acknowledge the existence of a "mental field" "in" which (though not in a spatial sense of the word) these phenomena take place. This applies equally to pure animism and spiritualism. Animism suffices for explaining some phenomena, but not for all. A variation of it is the theory of excursion, which explains spatial clairvoyance. As an explanation for higher mental phenomena (especially trance-communications) one must either introduce the theory of a superpersonal cosmic subject which contains the "plans" of the former (and future?) lives of individual personal minds, or the theory of spiritualism, which Driesch prefers to call monadism, regarding the bodiless, surviving personal minds as "monads." The specific personificatory character of some trance-communications makes their explanation through a "plan-bearing" cosmic subject very artificial, so in these cases Driesch would prefer the doctrine of monads, which, as he shows does not in fact introduce more new elements than the theory of the cosmic subject.

If the reality of phantoms presenting themselves apart from the bodies of living persons be admitted, then they too must be explained by a faculty of materialisation either on the side of the cosmic subject or of the deceased monads. The cosmic subject or the monads would have to be supposed to get into a kind of telepathic connection with the metagnome thus producing trance-communications and perhaps some cases of clairvoyance and prophecy. One of the most difficult questions is the explanation of the "selective" faculty of the metagnome enabling him to produce only those things which refer to the life of a specific deceased person. This too is better explained by monadism than by the doctrine of a superpersonal cosmic subject.

I hope this short survey, which of course is by no means exhaustive, will suffice to convey to the reader an impression of the importance of this new book of Driesch. I am told that Mr. Theodore Besterman is preparing an English translation.

In the preface as well as in the afterword Driesch finds some very hard, but not unmerited, words of reproach for official science because of its putting aside the facts of psychical research or even refusing to see them. In this connection he says: "He who thinks he can decide *a priori* what is objectively possible and impossible, and then shuts himself off from established facts, does harm to true enlightening science. Psychical research is quite as rational as, for instance, chemistry. That it finds new laws which looks strange at first sight is due precisely to that which is 'given.' Certain facts of empirical reality are in fact 'strange': which means no more, after all, than that they have only recently been established as real and have been only little explored." It is sincerely to be hoped that official science, not the least as an answer to the views put forth in this important book of Prof. Driesch, will in a near future give up its prejudiced attitude towards psychic phenomena and psychical research.

DR. GERDA WALTHER.

W. *Deonna* (Professor of the university of Geneva, Director of the Museum of Art and History there: "*De la Planète Mars en Terre Sainte. Art et subconscience. Un Médium peintre: Helène Smith.*" (From the Planet Mars to the Holy Land. Art and the subconscious mind. A psychic painter: Helen Smith.) Published by E. De Boccard, Paris 1932. 403 pages, XXIV illustrations.

This book is equally important for the investigation of the dissociation of personalities as for that of trance-mediumship and subconscious automatisms. It deals with the same medium as Prof. Flournoy's famous book "*From India to the Planet Mars*" (Harper, New York). Helène Smith's real name, Katherine Elise Muller, is now after her death revealed by Deonna. As will be remembered, Flournoy investigated her trance-communications and automatic writings and pictures describing life on the planet Mars (even giving the language of the Martians), and her description of her

alleged former life in India and as Marie Antoinette, a reincarnation of whom she believed herself to be. Although Flournoy never questioned her *bona fides* she was somewhat hurt by his reducing all this to manifestations of her subconscious mind. And after she had received from a female admirer the means to live independently, she would not have anything further to do with scientists. But equally she withdrew from the spiritualist circles. She would not be a medium in the ordinary meaning of the word any longer. Her principal guide "Leopold" (alleged to be Cagliostro) remained, but was translated to higher spheres. She herself was now told she was a reincarnation of Mary, the sister of Martha in the Bible. Henceforth she devoted herself to drawing and painting automatically (mostly in oil on wood) scenes from the life of the Saviour and his followers and surroundings. Here adherents said that these pictures had the faculty of healing sick people, and as long as she lived she would not sell them (they did not belong to her, she said, but were only entrusted to her by heaven) nor would she permit them to be reproduced by photographic or other means for fear some materialistic use should be made of these reproductions.

Heavenly spirits now surrounded her and advised her what to do. They announced to her when she was to paint a new picture, and what it would be, by "inner voices" which she heard These voices also accompanied her work with their directions. In a vision she saw before these pictures, which were then projected on the wood, so that she had only to follow the lines and then add the colours. This she did, now here, now there, apparently without any connection,—at least to the onlooker it seemed so,—until the whole was complete. Like Nüsslein she mostly used her fingers in painting, using the brush only for minute details. Some of these pictures can now be bought from her heirs; others were left to the museum in Geneva of which Prof. Deonna is director.

For this book Prof. Deonna has used many trance-scripts, automatic scripts, personal notes and letters of the medium, which were inaccessible as long as she lived. He compares them with communications of other inspired artists, poets, mystics etc., but also with works of the insane. To him all things produced by "Hélène Smith" are only manifestations of her fanciful, rich subconscious mind, which he tries to explore by all possible modern means, including psychoanalysis. As he is principally interested in her artistic productions he leaves aside other psychic phenomena of hers mentioned by Prof. Flournoy (raps, telekineses, telepathy, clairvoyance, premonitions etc.). Whether his interpretation is right or not would lead too far to discuss here. In any case the material contained in the book is of the greatest interest for all psychic researchers, psychologists, psycho-analysts and psychiatricts.

DR. GERDA WALTHER.

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